

What is claimed is:

1. A method for providing an optical head in a read/write device comprising:
positioning a light source with respect to an optical head substrate;
positioning at least a first optical element along an optical path from said light source to
an objective, wherein said optical path defines at least a farthest virtual source point;
5 providing at least a first beamshaper in said optical path, wherein a farthest virtual source
point of said optical path after said first beamshaper is provided is substantially the same as said
farthest virtual source point before said first beamshaper is provided.

2. A method as claimed in claim 1 wherein said beamshaper and said first optical
element are positioned on a single integral optical element unit.

3. A method, as claimed in claim 1 wherein said first optical element is a non-
beamshaper element.

4. A method, for forming an optical element comprising:
providing a first optical substrate;
positioning at least a first photomask on a first surface of said optical substrate;
etching at least a portion of said first surface to provide a first surface of said optical
5 element;

measuring said first surface of said optical element to determine errors in said first
surface of said optical element;

forming a second surface of said optical element in a second surface of said optical
substrate, substantially aligned with said first surface of said optical element, wherein said
10 second surface of said optical element is configured to at least partially compensate for said
errors determined as a result of said measuring .

5. A method, as claimed in claim 4, wherein said step of forming a second surface is
performed by an etching process.

6. A method as claimed in claim 4 wherein said errors include errors in the shape of said first surface of said optical element.

7. A method as claimed in claim 4 wherein said errors include errors in the position of said first surface of said optical element.

8. Optical head apparatus for use in a read/write device comprising:
an optical head substrate;
a light source positioned with respect to said optical head substrate;
a first optical element positioned along an optical path from said light source to an objective;
a second optical element in said optical path, wherein a first optical parameter of said optical path when said second optical element is provided is substantially the same as said first optical parameter before said second optical element is provided.

9. Apparatus as claimed in claim 8 wherein said second optical element is a beamshaper.

10. Apparatus as claimed in claim 8 wherein said first optical parameter is a farthest position of a virtual point source of said optical path.

11. Apparatus as claimed in claim 9 wherein said beamshaper and said first optical element are positioned on a single integral optical element unit.

12. Apparatus, as claimed in claim 1 wherein said first optical element is a non-beamshaper element.

13. Apparatus, for forming an optical element comprising:
a first optical substrate;

a first surface of said optical element formed on said optical substrate by etching at least a portion of said first surface using at least a first photomask;

5 an optical surface measurement device which measures said first surface of said optical element to determine errors in said first surface of said optical element; and

a second photomask, formed on a second surface of said optical substrate and configured for use in etching a second surface of said optical element, substantially aligned with said first surface of said optical element, wherein said second surface of said optical element is configured to at least partially compensate for said errors determined as a result of said measuring .

10 14. Apparatus as claimed in claim 13 wherein said errors include errors in the shape of said first surface of said optical element.

15. Apparatus as claimed in claim 13 wherein said errors include errors in the position of said first surface of said optical element.

16. Optical head apparatus for use in a read/write device comprising:

an optical head substrate;

a light source means for outputting light, positioned with respect to said optical head substrate;

5 a first optical means for modifying said light, positioned along an optical path from said light source means to an objective means;

a second optical means for modifying said light, said second optical means positioned in said optical path, wherein a value of a first optical parameter of said optical path when said second optical means is provided is substantially the same as a value of said first optical parameter before said second optical means is provided.

10 17. Apparatus as claimed in claim 16 wherein said second optical means is a beamshaper.

18. Apparatus as claimed in claim 16 wherein said first optical parameter is a farthest position of a virtual point source of said optical path.

19. Apparatus as claimed in claim 16 wherein said first optical means and said second optical means are positioned on a single integral optical element unit.

20. Apparatus, as claimed in claim 16 wherein said first optical means is a non-beamshaper element.

21. Apparatus, for forming an optical element comprising:
a first optical substrate;
means for positioning at least a first photomask on a first surface of said optical substrate;
means for etching at least a portion of said first surface to provide a first surface of said optical element;
means for measuring said first surface of said optical element to determine errors in said first surface of said optical element;
means for forming a second surface of said optical element in a second surface of said optical substrate, substantially aligned with said first surface of said optical element, wherein said second surface of said optical element is configured to at least partially compensate for said errors determined as a result of said measuring .

22. Apparatus, as claimed in claim 21, wherein said means for forming a second surface comprises means for forming by an etching process.